

REPORT ON MACHINERY.

Nwc. No. 53742
No. 23460

Port of Sunderland

Received at London Office **WED. 30 OCT 1907**

No. in Survey held at Sunderland
Reg. Book. S. S. Saxon
on the

Date, first Survey 11th June 1907 Last Survey 30th Sept 1907
(Number of Visits 25.)

Master J. Shields Built at J. Shields By whom built Smith's Dock Co. Ltd Tons ^{Gross} 239 _{Net} 74
 Engines made at Sunderland By whom made Messrs Mac Coll & Pollock when made 1907
 Boilers made at Sunderland By whom made Messrs Mac Coll & Pollock when made 1907
 Registered Horse Power _____ Owners Neale Bros Port belonging to Mixed
 Nom. Horse Power as per Section 28 78 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no

ENGINES, &c.—Description of Engines Inverted triple expansion No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 12 1/2, 20, 34 Length of Stroke 24 Revs. per minute 110 Dia. of Screw shaft 7 1/2 Material of screw shaft Steel
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes Is the after end of the liner made water tight in the propeller boss Yes If the liner is in more than one length are the joints burned Yes If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive Yes If two liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 2' 6"
 Dia. of Tunnel shaft 6 7/8 Dia. of Crank shaft journals 6 7/8 Dia. of Crank pin 6 7/8 Size of Crank webs 11 x 4 1/2 Dia. of thrust shaft under collars 6 7/8 Dia. of screw 9.3 Pitch of Screw 12.0 No. of Blades 4 State whether moveable No Total surface 344 sq ft
 No. of Feed pumps one Diameter of ditto 2 3/4 Stroke 12 Can one be overhauled while the other is at work Yes
 No. of Bilge pumps one Diameter of ditto 2 3/4 Stroke 12 Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 2 Sizes of Pumps 3 1/2 x 6 x 6 & 2 x 4 x 4 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room one of 2" & injector of 2 1/2" In Holds, &c. 1 of 2" to sludge tank
 No. of Bilge Injections 1 sizes 3" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size 2"
 Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the sluices on Engine room bulkheads always accessible Yes
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks both
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Discharge Pipes above or below the deep water line above
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes
 What pipes are carried through the bunkers suction to sludge tank How are they protected wood casing
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes
 Dates of examination of completion of fitting of Sea Connections 14.9.07 of Stern Tube 23.9.07 Screw shaft and Propeller 23.9.07
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from 17.10.07

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Messrs W. Beardmore & Co
 Total Heating Surface of Boilers 1423 sq ft Is Forced Draft fitted no No. and Description of Boilers one S.E. Cylindrical Mult²
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 13.9.07 No. of Certificate 2654
 Can each boiler be worked separately Yes Area of fire grate in each boiler 38 sq ft No. and Description of Safety Valves to each boiler 2 spring Area of each valve 3.98 sq in Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 10" Mean dia. of boilers 12' 6" Length 10' 6" Material of shell plates steel
 Thickness 1 1/2 Range of tensile strength 28/32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams d. r. lap.
 long. seams L. r. d. r. s. Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 7 3/4" Lap of plates or width of butt straps 15 3/4"
 Per centages of strength of longitudinal joint rivets 92.5 Working pressure of shell by rules 180 lbs Size of manhole in shell 16 x 12"
 Size of compensating ring 7 1/2 x 1 1/2 No. and Description of Furnaces in each boiler 2-plain Material steel Outside diameter 43"
 Length of plain part top 75" bottom 81" Thickness of plates crown 49/64 bottom 1/64 Description of longitudinal joint weld No. of strengthening rings 1/2 ring
 Working pressure of furnace by the rules 180 lbs Combustion chamber plates: Material steel Thickness: Sides 11/16 Back 11/16 Top 11/16 Bottom 7/8
 Pitch of stays to ditto: Sides 10 x 9" Back 9 1/2 x 9 3/8 Top 9 1/2 x 9 3/8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180.5 lbs
 Material of stays steel Diameter at smallest part 1.79 Area supported by each stay 90 Working pressure by rules 180 lbs End plates in steam space: Material steel Thickness 1 1/4 Pitch of stays 20 1/2 x 18 1/2 How are stays secured du + w Working pressure by rules 181.1 lbs Material of stays steel
 Diameter at smallest part 7.24 Area supported by each stay 385 Working pressure by rules 181.6 lbs Material of Front plates at bottom steel
 Thickness 13/16 Material of Lower back plate steel Thickness 13/16 Greatest pitch of stays 12 1/4 Working pressure of plate by rules 191.7 lbs
 Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 1/2 Material of tube plates steel Thickness: Front 13/16 Back 13/16 Mean pitch of stays 9 x 18 1/2
 Pitch across wide water spaces 14 1/4 Working pressures by rules 210 lbs Girders to Chamber tops: Material steel Depth and thickness of girder at centre 9 1/2 x 1 1/2 Length as per rule 31 3/8 Distance apart 9 1/2 Number and pitch of stays in each 2 - 8 1/2"
 Working pressure by rules 182.3 lbs Superheater or Steam chest; how connected to boiler Yes Can the superheater be shut off and the boiler worked separately Yes Diameter Yes Length Yes Thickness of shell plates Yes Material Yes Description of longitudinal joint Yes Diam. of rivet holes Yes Pitch of rivets Yes Working pressure of shell by rules Yes Diameter of flue Yes Material of flue plates Yes Thickness Yes
 If stiffened with rings Yes Distance between rings Yes Working pressure by rules Yes End plates: Thickness Yes How stayed Yes
 Working pressure of end plates Yes Area of safety valves to superheater Yes Are they fitted with easing gear Yes

W61-0069

VERTICAL DONKEY BOILER— Manufacturers of Steel

No. _____ Description _____

Made at _____ By whom made _____ When made _____ Where fixed _____

Working pressure tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____ Fire grate area _____ Description of Safety _____

Valves _____ No. of Safety Valves _____ Area of each _____ Pressure to which they are adjusted _____ Date of adjustment _____

If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____ Dia. of donkey boiler _____ Length _____

Material of shell plates _____ Thickness _____ Range of tensile strength _____ Descrip. of riveting long. seams _____

Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____ Rivets _____ Plates _____

Working pressure of shell by rules _____ Thickness of shell crown plates _____ Radius of do. _____ No. of stays to do. _____ Dia. of stays _____

Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace plates _____ Description of joint _____

Working pressure of furnace by rules _____ Thickness of furnace crown plates _____ Stayed by _____

Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:— 2 Top end, 2 bottom end, 2 Main bearing and one set of coupling bolts, 1 set of Air + Circulating pump Valves, 1 set of feed and bilge pump Valves, 1 Main + 1 Donkey feed check Valve, 1 propeller, Bolts and nuts assorted, and iron of size _____

The foregoing is a correct description, **COLL & POLLOCK, LTD.**
 Manufacturer. *Hugo MacCall*

Dates of Survey while building { During progress of work in shops - - 07. June 11, 25, July 1, 12, 16, 18, 23, 30, Aug 1, 7, 12, 14, 17, 22, 28, Sept 2, 6, 12, 13, 17, 19, 23, 25, 27, 30
 { During erection on board vessel - - Nov. 1907, Sep. 16, 17, Oct 16, 17, 22
 Total No. of visits 25

Is the approved plan of main boiler forwarded herewith Yes
 " " " donkey " " "

Dates of Examination of principal parts—Cylinders 23.8.07 Slides 12.8.07 Covers 12.8.07 Pistons 14.8.07 Rods 28.8.07
 Connecting rods 28.8.07 Crank shaft 12.8.07 Thrust shaft 22.8.07 Tunnel shafts ✓ Screw shaft 19.9.07 Propeller 6.9.07
 Stern tube 19.9.07 Steam pipes tested 25.9.07 Engine and boiler seatings 16.9.07 Engines holding down bolts 25.9.07
 Completion of pumping arrangements 30.9.07 Boilers fixed 25.9.07 Engines tried under steam 30.9.07
 Main boiler safety valves adjusted 30.9.07 Thickness of adjusting washers P. 3/4 bare; S. 1/2 bare
 Material of Crank shaft Steel Identification Mark on Do. H.C.H.L.P. Material of Thrust shaft Steel Identification Mark on Do. P.46.9.F.0
 Material of Tunnel shafts ✓ Identification Marks on Do. ✓ Material of Screw shafts Steel Identification Marks on Do. P.46.9.F.0
 Material of Steam Pipes Copper Test pressure 400 lbs

General Remarks (State quality of workmanship, opinions as to class, &c. *The Machinery of this vessel has been constructed under special survey, the workmanship and materials used are both of good quality, the Engines have been tried under steam and worked satisfactorily*)

note It is stated that the vessel grounded on returning to the builder from Sunderland after the machinery fitted on board - vessel dry-docked, several small pieces found broken off edges of propeller blades, under the circumstances as the propeller was thus slightly blunted a new propeller was fitted, and the Tail shaft (C.L.) + Crank shaft examined + found satisfactory - 17.10.07

*We beg to recommend that this vessel is eligible in our opinion to have the record **L.M.C. 10.07** in the Register Book*
 It is submitted that this vessel is eligible for **THE RECORD. L.M.C. 10.07**

The amount of Entry Fee. £ 1 : : When applied for, 4.10.1907
 Special .. £ 11 : 14 : :
 Donkey Boiler Fee .. £ : : :
 Travelling Expenses (if any) £ : : : When received, 30.10.07

LC. 30.10.07
Leonard Challerton
K.W. Coomber
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **FRI. 1 NOV 1907**
 Assigned *+ LMB 1007*

Sunderland

Certificate (if required) to be sent to

The Surveyors are requested not to write on or below the space for Committee's Minute.

